

## Claims

1. A process for producing highly pure CMP-N-acetylneuraminic acid (CMP-NeuAc), comprising the following steps (1) to (4):

step (1): a step of adding a divalent cationic species to a CMP-NeuAc-containing solution, thereby causing phosphoric acid, pyrophosphoric acid, and a nucleotide which coexist with CMP-NeuAc to precipitate;

step (2): a step of adding a phosphatase to the CMP-NeuAc-containing solution, thereby converting the nucleotide which coexists with CMP-NeuAc into a nucleoside;

step (3): a step of adding an organic solvent, thereby precipitating CMP-NeuAc in the form of salt; and

step (4): a step of collecting the thus-precipitated CMP-NeuAc,

wherein these steps are performed in a predetermined combination.

2. A process according to claim 1, wherein these steps are performed in the following sequence: step (1), step (2), step (3), and then step (4).

3. A process according to claim 1, wherein these steps are performed in the following sequence: step (2), step (1), step (3), and then step (4).

4. A process according to claim 1, wherein step (1) and step (2) are performed simultaneously.

5. A process according to claim 1, wherein step (3) and

step (4) are performed a plurality of times.

6. A process according to any one of claims 1 to 5, wherein the divalent cationic species is a calcium ion or a manganese ion.

7. A process according to any one of claims 1 to 5, wherein the phosphatase is *Escherichia coli* alkaline phosphatase.

8. A process according to any one of claims 1 to 5, wherein the organic solvent is an alcohol having a carbon number of 5 or less.

9. A production process according to claim 1, wherein the CMP-NeuAc collected in step (4) is subjected to cation exchange reaction for substitution of the cationic moiety of the CMP-NeuAc.

10. A production process according to claim 9, wherein the cation exchange reaction employs an ion-exchange resin.